

Applicant: Michael VOGEL  
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**REMARKS**

Claims 1-30 are presently being examined; claims 1-27 having been allowed.

Pages 2 and 3 of the Office Action rejected, under 35 U.S.C. §102(e), claims 28 and 30 as being anticipated by U.S. Patent No. 6,873,407 to Vogel ("Vogel patent") and claims 28 and 29 as being anticipated by Huang, Y. D., "Calibration Of The Wild P32 Camera Using The Camera-On-Theodolite Method", Photogrammetric Record, 16(91), April 1998, pages 97-104 ("Huang article"). According to the Office Action, each element of claims 28 and 30 are found in the Vogel patent, and each element of claims 29 and 30 are found in the Huang article.

Applicant respectfully submits that the Vogel patent fails to provide any means to account for one or more of the actual optical axes being 'eccentric', that is, an optical or sighting axis which does not pass through the intersection point of the instrument axes. For example, the Vogel patent, unlike the present invention as recited in claim 28, does not provide a "projection center" for a "camera model" that is different from than the intersection point such that a "sighting axis" can be defined. Instead, the device discussed by the Vogel patent requires that what would be a projection center is always at or close to the intersection point of the instrument axes, see for example, column 2 at lines 22-26 and column 7 at lines 47-52 of the Vogel patent. By teaching, and reciting in claim 28, a

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"sighting axis" defined by a "projection center" for the "camera model" which is different from the "intersection point" of the "tilting axis and the vertical axis", that is, the instrument axes, the present invention avoids such a requirement.

In addition, as recited in claim 28, this type of "sighting axis" is indicated by a "mark" on the "display", see for example, page 41, line 24 to page 42, line 4 of the present specification, which allows for correction of errors caused by an actual optical axis not passing through the intersection point of the instrument axes. While the Vogel patent discusses "measurement results" being "displayed" at column 8 in line 27-29, these results appear to be the survey measurements and not a "mark" indicating "a sighting axis" which can be 'eccentric' as recited in claim 28.

Applicant also respectfully submits that the camera-on-theodolite device discussed in the Huang article, is an optical/mechanical device that does not employ an on-board "control unit", such as a computer, capable of displaying a "mark" on a "display" to indicate a particular "sighting axis" as recited in claim 28. Indeed, the device discussed by the Huang article uses film, see page 101 at paragraph 4 and page 103 at line 2 of the Huang article, which requires that any calculations to account for an 'eccentric' sighting axis be performed externally to the device, and then only after the film or photographic plate is processed. Applicant notes that while a "theodolite-CCD camera combination" is mentioned in the Huang

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article, the operation of such a combination or the presence of a "display" in the combination is not discussed.

Thus, for at least these reasons, applicant respectfully submits that the present invention as recited in claim 28 is not anticipated by the Vogel patent or the Huang article, taken alone or in combination.

Similar to the discussion above with respect to claim 28, applicant respectfully submits that, unlike the Vogel patent, the present invention, as recited in claim 30, provides a "direction from the origin of the instrument coordinate system to the object point" using the "camera model and the transformation model". In other words, using a sighting axis that can be 'eccentric'. Instead of providing such a transformation model to correct for the eccentricity, as discussed above, the device of the Vogel patent requires a relatively complex construction with multiple sighting axes which may reduce, but does not correct for, eccentricity.

Thus, for at least these reasons, applicant respectfully submits that the present invention as recited in claim 30 is not anticipated by the Vogel patent.

With respect to claim 29, applicant respectfully submits that, as discussed above with respect to claim 28, the Huang article fails to teach or suggest a "surveying instrument" including a "data processing unit", that is a computer, for

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determining the direction of an object point using "camera and transformation models" as taught by the present invention and as recited in claim 29. Instead, the Huang article only relates to an optical/mechanical device.

Thus, for at least these reasons, applicant respectfully submits that the present invention as recited in claim 29 is not anticipated by the Huang article.

In view of the remarks above, applicant respectfully submits that claims 28-30 are not anticipated by the Vogel patent and/or the Huang article. Accordingly, applicants respectfully request that the rejections raised against claims 28-30 under 35 U.S.C. §102(e) be reconsidered and withdrawn.

In view of the statement in the Office Action that claims 1-27 are allowed, and the remarks above, applicant respectfully requests that the rejections raised in the Office Action be reconsidered and withdrawn, and earnestly solicit a Notice of Allowance.

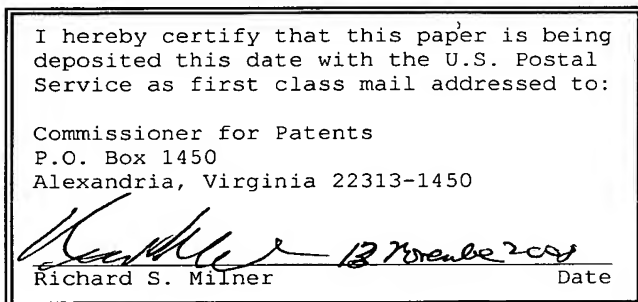
If a telephone conference would be of assistance in advancing prosecution of the subject application, applicant's undersigned attorney invites the Examiner to telephone him at the number provided.

No fees, other than the fee for the three-month extension of time, are deemed necessary in connection with the filing of

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this Reply. However, if any such fees are required, authorization is hereby given to charge the amount of any such fees to Deposit Account No. 03-3125.

Respectfully submitted,



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